



MONEYBALL IN THE TURKISH FOOTBALL LEAGUE REVISITED: ANOMALIES IN GALATASARAY, FENERBAHÇE AND BESİKTAS STOCK RETURNS DURING COVID-19 INCIDENT

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ABSTRACT

Purpose - In this paper, we focus on the news impact analysis of the club stock returns. Galatasaray, Fenerbahçe and Beşiktaş stock prices skyrocketed in the last 3 months right after the suspension of leagued due to pandemic since they were not supported with the financial results of the clubs

Methodology - We investigate the anomalies observed in the pandemic for three big football club stock returns by utilizing EGARCH models and News Impact Curves

Findings- According to our EGARCH models we find that in Covid-19 period news impact persistency significantly increased for all three big club stock volatilities. Moreover, News Impact curves showed us in Covid-19 period the behavior of Fenerbahçe and Beşiktaş volatility changes. In the pandemic period after suspension of Turkish Football League bad news has more impact on Fenerbahçe and Beşiktaş stock volatility

Conclusion- Since the leagues are suspended due to Covid-19 pandemic, and weak financial performances of all teams also do not support the stock price performances there is no fundamental explanation for this hike experienced in the last 3 months. This result confirms our first study conclusion which is sporting performances, excluding the unexpected wins, do not have any impact on the volatility of listed football clubs.

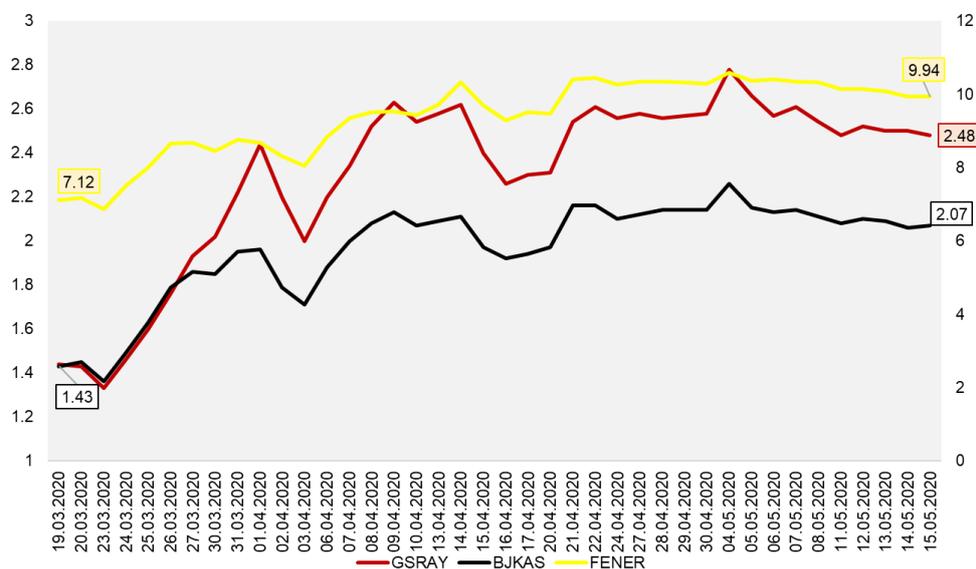
Keywords: Turkish Football League, Covid-19, news impact curves, Tobin's Q, Galatasaray, Fenerbahçe, Beşiktaş.

JEL Codes: C58, G14, G15

1. INTRODUCTION

The coronavirus pandemic caused significant financial loss to the world of football. Manchester United, the 20-time Premier League champions have faced \$1.2BN decrease of their stock market value. The Old Trafford side were valued at \$3.6BN before Covid-19 however it decreased to \$2.4BN. Fueled by the huge impact of Covid-19 to Italy, Juventus is another example whose stock prices decreased 56% between 13.02.2020 and 12.03.2020 from 1.24 EUR to 0.55 EUR. It recovered to 0.83 EUR as of 22.05.2020. In 2018/2019 season Manchester United generated 711.5 million EUR revenue while Juventus reached to 459.7 million EUR.

Turkish football's so-called 'big three' of Galatasaray Fenerbahçe and Beşiktaş are by far the best supported Turkish teams. Between them they have won most of the championships in the history of the country's top league, and they have the biggest financial structures in Turkish football. Compared to Manchester United and Juventus, big-three of Turkish Football League, they neither have better financials nor their international sportive success is better. However, the stock prices skyrocketed in the last 3 months right after the suspension of leagued due to pandemic. Galatasaray, Fenerbahçe and Beşiktaş stock prices increased 72%, 40% and 45% respectively between 19.03.2020 and 15.05.2020 (Figure 1).

Figure 1: Galatasaray, Fenerbahçe and Beşiktaş Stock Price Trend During Covid-19 Incident

Stock price increases between 19.02.2020-15.05.2020 stock : **GSRAY: %72, FENER: %40, BJKAS: %45**

In this paper we revisit our previous study “Moneyball in the Turkish Football League: A Stock Behavior Analysis of Galatasaray and Fenerbahçe Based on Information Saliency (Özdurak and Ulusoy 2013)” which we concluded that unexpected wins have a significant effect on stock returns. Moreover, we showed that non-sportive news such as match fixing case of FB and player transfer news of GS have a more significant effect on stock returns where bad news has a higher impact compared to good news. Catastrophic events always create a more emotional cycle in the financial markets.

The article will continue with the recent literature review for sports economics and the application of econometrics modeling in football club stocks. In the following parts we will analyze the financial fundamentals of the three major football club of Turkish Football League to relate our findings with the unexpected stock price increases in the pandemic period. We will finalize our analysis by utilizing EGARCH models and News Impact Curves to show that stock returns are driven by news rather than sports success or financial fundamentals of the football clubs

2. LITERATURE REVIEW

The effects of the football match results were studied by several researches covering many topics. Some of these studies focused on the effects of the individual football teams’ matches (Renneboog and Vanbrabat ,2000; Palomino et al., 2005; Stadtmann, 2006; Boido and Fasano, 2007) while the others have focused on examining the impacts of national football teams’ match results (Edmans et al., 2007; 2010; Ashton et al., 2010; Gerlach, 2011).

In Turkey, to the public and media alike, football is the most important sport. However, there are not many studies in the literature covering Turkish Football Leagues football club stocks’ behavior. In their paper Berument et. all (2009) tested the hypothesis whether returns on GS, FB and BJK can be associated with the wins of teams and the strength of the emotional ties that fans who happen to be broker/traders have to their teams. Their results are in line with the proposition that wins are associated with higher returns. Moreover, their findings show that stock market returns increased following BJK’s whose fans have a high rate of fanaticism wins against foreign rivals. Demir and Daniş (2011) considered the anticipated and unexpected results as explanatory variables in their model. They used Beşiktaş, Fenerbahçe and Galatasaray data between 2004 and 2009.

No similar effect is reported for FB and GS. The crucial difference of with Özdurak and Ulusoy (2013) is that we tested the effect of game results, betting odds to and specific announced news about the teams rather than testing a general news effect on the GS, FB and BJK stocks as Berument et. al (2009) did. So, we provided one of the first detailed examples in this research area about stock behaviors of Turkish Football League clubs listed in ISE.

By employing multiple regression models, Saraç and Zeren (2013) show that the soccer performance is significantly and positively related with the stock returns for all the three clubs. The relationship is found stronger in Beşiktaş compared to the other two. Gökten and Karatepe (2015) used event study methodology by Brown and Warner in order to analyze the effects of football club related events caused by match-fixing activities on stock prices concluding that there are statistically significant abnormal returns around the publication date. Sultanoğlu et al (2018) show that any positive or negative announcement released from Turkish court, Turkish Football Federation, the UEFA and/or the Court of Arbitration for Sport about Fenerbahçe and also any news about club executives allegedly involved in the event of match-fixing and the match results have significant positive effects on the Fenerbahçe's stock return volatility. In a recent study Ulusoy and Ünlü (2020) state that the announcement of entering group stages in the UEFA European League before the match-fixing process has a positive impact on both teams' stock movements. On the other hand, after the announcement of match-fixing, the negative effect is achieved for both teams, even they earn the right to enter group stages. As a result of the literature summary we can conclude that although the methodologies can vary, most of the titles cover news impact on sport club stock returns rather than the sportive success.

3. METHODOLOGY

One model that allows for asymmetric effect of news is the EGARCH model. One problem with a standard GARCH model is that it is necessary to ensure that all the estimate coefficients are positive. Nelson (1991) proposed a specification that does not require non-negativity constrains.

Consider:

$$\ln(h_t) = \alpha_0 + \alpha_1 \left(\frac{\varepsilon_{t-1}}{h_{t-1}^{0.5}} \right) + \lambda_1 \left| \frac{\varepsilon_{t-1}}{h_{t-1}^{0.5}} \right| + \beta_1 \ln(h_{t-1}) \quad (1)$$

Equation (1) is called the exponential-GARCH or EGARCH model. There are three interesting features to notice about EGARCH model:

1. The equation for the conditional variance is in log-linear form. Regardless of the magnitude of $\ln(h_t)$, the implied value of h_t can never be negative. Hence, it is permissible for the coefficients to be negative.
2. Instead of using the value of ε_{t-1}^2 , the EGARCH model uses the level of standardized value of ε_{t-1}^2 [i.e., ε_{t-1}^2 divided by $(h_{t-1})^{0.5}$]. Nelson argues that this standardization allows for a more natural interpretation of the size and persistence of shocks. After all, the standardized value of ε_{t-1}^2 is a unit-free measure.
3. The EGARCH model allows the leverage effects. If $\varepsilon_{t-1}^2/(h_{t-1})^{0.5}$ is positive, the effect of the shock on the log of conditional variance is $\alpha_1 + \lambda_1$. If $\varepsilon_{t-1}^2/(h_{t-1})^{0.5}$ is negative, the effect of the shock on the log of the conditional variance is $-\alpha_1 + \lambda_1$.

The trade-off between future risks and asset returns are the essence of most financial decisions. Risk mainly composes of two factors such as volatilities and correlations of financial assets. Since the economy changes frequently and new information is distributed in the markets second moments evolve over-time. Consequently, if methods are not carefully established to update estimates rapidly then volatilities and correlations measured using historical data may not be able to catch differentiation in risk (Cappiello et. al, 2006).

If we consider EGARCH models, the news impact curve has its minimum at $\varepsilon_{t-1}=0$ and is exponentially increasing in both directions but with different parameters. The news impact curves are made up by using the estimated conditional variances equation for the related model as such the given coefficient estimates and with the lagged conditional variance set to the unconditional variance.

Consider EGARCH (1,1)

$$\ln(h_t) = \alpha_0 + \beta \ln(h_{t-1}) + \alpha_1 z_{t-1} + \gamma(|z_{t-1}|) - E(|z_{t-1}|) \quad (2)$$

where $z_t = \varepsilon_t/\sigma_t$. The news impact curve is

$$h_t = \begin{cases} A \exp \left[\frac{\alpha_1 + \gamma}{\sqrt{h_t}} \right] & \text{for } \varepsilon_{t-1} > 0 \\ A \exp \left[\frac{\alpha_1 - \gamma}{\sqrt{h_t}} \right] & \text{for } \varepsilon_{t-1} < 0 \end{cases} \quad (3)$$

$$A \equiv h_t^\beta \exp[\alpha_0 - \gamma\sqrt{2/\pi}] \quad (4)$$

$$\alpha_1 < 0 \quad \alpha_1 + \gamma > 0 \quad (5)$$

An important characteristic of asset prices is that “bad” news has more persistent impact on volatility than “good” news has. Most of the stocks has a strong negative correlation between the current return and the future volatility. In this context we can define leverage effect as such volatility tends to decrease when returns increase and to increase when returns decrease.

The idea of the leverage effect is exhibited in the figure below, where “new information” is defined and measured by the size of ε_{t-1} . If $\varepsilon_{t-1}=0$, expected volatility (h_t) is 0. Any news increases volatility but if the news is “good” (i.e., if ε_t is positive), volatility rises from point **a** to point **b** along ab curve (or ab' for EGARCH model). However, if the news is “bad”, volatility rises from point **a** to point **c** along ac curve (or ac' for EGARCH model). Since ac and ac' are steeper than ab and ab', a positive ε_t shock will have a lower impact on volatility than a negative shock of these same magnitude.

Asymmetric volatility models are the most interesting approaches in the literature since good news and bad news have different predictability for the future volatility. Overall, Chen and Ghysels (2010) found that partly good (intra-daily) news decreases volatility (the next day), while both very good news which is unusual high intra-daily positive returns, and bad news which is negative returns increase volatility. However, the latter has a more severe impact over longer horizons the asymmetries fade away. The news impact curve illustrates the impact of previous return shocks on the return volatility which is implicit in a volatility model

4. DATA AND

The study covers daily closing prices for three biggest football clubs of Turkish Football League, namely Galatasaray (GSRAY), Fenerbahçe (FENER), Beşiktaş (BJKAS). Daily data for all assets have been taken from Investing.com. The time span for the study runs from 01 January 2015 to 15 May 2020 for the long-term period and 19 March 2020 to 15 May 2020 for Covid-19 period which starts with the suspension of football leagues.

Firstly, we analyzed the audited financial reports of the clubs to understand whether the Covid-19 period stock movement of Galatasaray, Fenerbahçe and Beşiktaş has any fundamental base. Matches in Turkey were played to empty stadiums after the first case was diagnosed March 11 and the federation suspended the leagues after the deaths from the virus in the country. Afterwards, the football leagues in Turkey is decided to be resumed by Turkish Football Federation, however, based on the revenue segmentations¹ of clubs we can conclude that this decision is not an outcome of the broadcaster corporation, namely Bein Sports, enforcement as it is reflected in the sports media. Broadcasting revenue constitutes only 20% of Galatasaray and Beşiktaş total revenue while main revenue comes from international tournament revenue, matchday revenue and combined ticket sales.

In Table 1, financial summary of Galatasaray is exhibited. Galatasaray is the only football club which generates net gain due to the last reporting period among all the three clubs. In Table 2 and Table 3, it is exhibited that Fenerbahçe and Beşiktaş financials generate net loss and their net debt is significantly higher than their total market capitalization. Even at gross profit level Fenerbahçe and Beşiktaş deliver negative results both in 2019 and 2020 within the reporting periods. Thanks to Champions and European League revenues, Galatasaray delivered positive gross profit in 2019 and 2020 as of 29.02.2020.

¹ We can only calculate the revenue proportion of broadcasting for Galatasaray and Beşiktaş. Fenerbahçe does not provide revenue segmentation in its audited financial reports.

Table 1: Financial Summary of Galatasaray

GSRAY				
Reporting Period	29.02.2020-01.06.2019	28.02.2019-01.06.2018	2020 (% of Tot. Rev)	2019 (% of Tot. Rev)
UEFA Champions League and European League Revenue (mln TRY)	202.99	215.84	28%	34%
Sponsorship, Royalty, Advertisement	131.24	109.42	18%	17%
VIP, Loggia, Combinet Ticket	129.86	95.99	18%	15%
Broadcasting	128.90	129.05	18%	20%
Licensed Product	102.97	78.52	14%	12%
Transfer fee, player rental income	27.28	2.97	4%	0%
Other Income	3.16	8.60	0%	1%
Total Revenue (mln TRY)	726.41	640.39	100%	100%
Gross Profit (mln TRY)	117.08	110.66	16%	17%
Operating Profit (mln TRY)	57.81	38.67	8%	6%
Net Gain/Loss	3.97	76.07	1%	12%

<i>mln TRY</i>	2020	2019	Δ
Net Debt	1320.03	898.59	47%
Market Cap	1371.60		
Tobin's Q	2.21		

In addition to financial results we also calculated Tobin's Q for all three football clubs. Tobin's Q Ratio is a metric to measure Intellectual Capital. In the methodology, Q Ratio represents the ratio of the market value of the enterprise to the replacement where replacement cost is the cost to replace the existing production capacity and the market value is the going price in the market for exchanging existing assets. In our case, we accepted replacement cost same with the squad value of football clubs by utilizing the data at <https://www.transfermarkt.com.tr/> as of 20.05.2020. Here another important assumption to calculate Tobin's Q is that the stock prices of all clubs are fairly priced in the exchange market by investors. There is no under or over valuation. However, the financial results of all clubs do not support both their market caps and the skyrocketing performance of their stock prices in the last three months. Anyhow, Tobin's Q ratios indicate that Galatasaray Football Club uses its intellectual capital more efficiently while Beşiktaş uses most inefficiently based on the as is situation of the football clubs. Higher intellectual capital value means higher market share for football clubs so the biggest football clubs should develop their intellectual capital more rapidly.

Following the financial fallout from the outbreak, Turkish Super league clubs can reach a mutual agreement with their players on salary cuts in accordance with FIFA recommendations. Players and coaches from clubs all over the world are expected to take pay cuts amid the negative financial impact from the pandemic

Table 2: Financial Summary of Fenerbahçe

FENER				
Reporting Period	29.02.2020- 01.06.2019	28.02.2019- 01.06.2018	2020 (% of Tot. Rev)	2019 (% of Tot. Rev)
UEFA Champions League and European League Revenue (mln TRY)	N/A	N/A		
Sponsorship, Royalty, Advertisement	N/A	N/A		
VIP, Loggia, Combinet Ticket	N/A	N/A		
Broadcasting	N/A	N/A		
Licensed Product	N/A	N/A		
Transfer fee, player rental income	N/A	N/A		
Other Income	N/A	N/A		
Total Revenue (mln TRY)	456.02	502.07	100%	100%
Gross Profit (mln TRY)	-23.88	-40.94	-5%	-8%
Operating Profit (mln TRY)	-99.75	-132.01	-22%	-26%
Net Gain/Loss	-36.71	-102.24	-8%	-20%

<i>mln TRY</i>	2020	2019	Δ
Net Debt	1937.29	1914.44	1.2%
Market Cap	990.79		
Tobin's Q	2.02		

Since now we are confident that the financial fundamentals and the stock price movements in the Covid-19 period are not compatible we can focus on the news impact analysis of the club stock returns. Table 4 illustrates the descriptive statistics of the return of the series. As evident from Table 4, returns of Galatasaray and Fenerbahçe are negatively skewed and the kurtosis is much higher than 3 for all these football clubs. This is indicative of the deviation of series from the normal distribution which is also supported with Jarque-Bera statistics. Further, the stationarity of the variables has been examined using the Augmented Dickey-Fuller (ADF) unit root test. The null hypothesis of the unit root is rejected for all return series.

Table 3: Financial Summary of Beşiktaş

BJKAS				
Reporting Period	29.02.2020- 01.06.2019	28.02.2019- 01.06.2018	2020 (% of Tot. Rev)	2019 (% of Tot. Rev)
UEFA Champions League and European League Revenue (mln TRY)	50.50	58.43	12%	11%
Sponsorship, Royalty, Advertisement	86.70	111.43	21%	21%
VIP, Loggia, Combinet Ticket	80.61	73.24	20%	14%
Broadcasting	102.89	107.68	25%	20%
Licenced Product	76.20	96.21	18%	18%
Transfer fee, player rental income	14.50	82.90	4%	16%
Other Income	0.60	-3.35	0%	-1%
Total Revenue (mln TRY)	412.00	526.53	100%	100%
Gross Profit (mln TRY)	-34.98	-7.08	-8%	-1%
Operating Profit (mln TRY)	-108.99	-40.66	-26%	-8%
Net Gain/Loss	-246.18	-94.51	-60%	-18%

<i>mIn TRY</i>	2020	2019	Δ
Net Debt	1600.41	-1200.68	-233%
Market Cap	504.00		
Tobin's Q	1.24		

Table 4: Descriptive Statistics

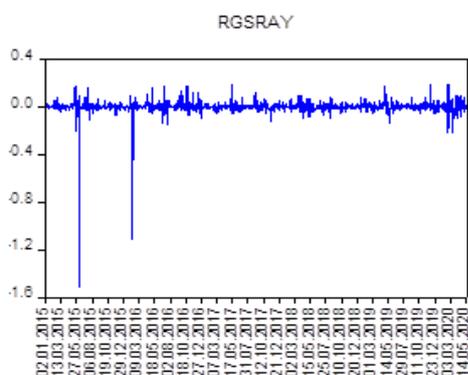
	RGSRAY	RFENER	RBJKAS
Mean	-0.001498	-0.000898	-0.000146
Median	0.000000	-0.000492	0.000000
Maximum	0.184093	0.182322	0.181296
Minimum	-1.51901	-0.759244	-0.223144
Std. Dev.	0.064001	0.034994	0.032844
Skewness	-13.65745	-7.419723	0.016865
Kurtosis	303.8117	167.9163	13.8499
Jarque-Bera Probability	5139504 0.00000	1544525 0.00000	6631.642 0.00000
ADF Tests (Level)	-33.66	-35.91	-35.98

Notes: Between parenthesis: p-values. The number of observations for first period is 1352 JB are the empirical statistics for Jarque Bera tests for normality based on skewness and kurtosis ADF Tests refer to Augmented Dickey Fuller test for the presence of unit root for long differences (returns)

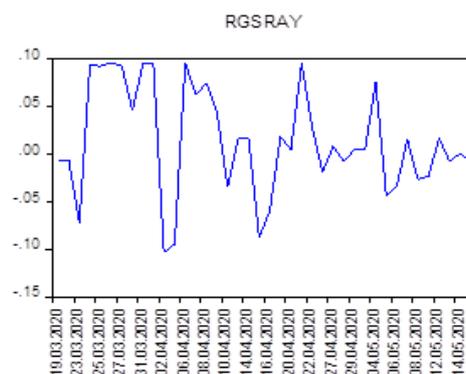
Returns of all series are calculated by taking the first differences of the logarithm of the two successive prices i.e. $r_t = \log(P_t/P_{t-1})$ which are RGSRAY, RFENER, RBJKAS. Time-series graphs of the returns have been illustrated which exhibits vividly how volatility has varied in the last three months in Figure 2. It is also visible that industry index.

Figure 1: Graphs of Galatasaray, Fenerbahçe and Beşiktaş Stock Returns

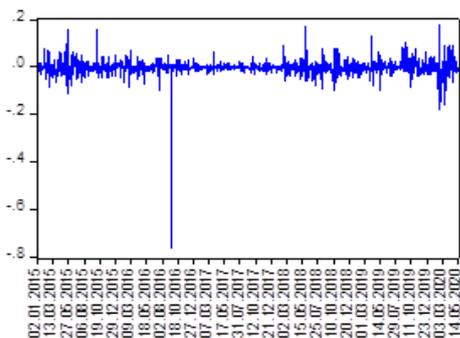
Long Term Returns (02.01.2015-15.05.2020)



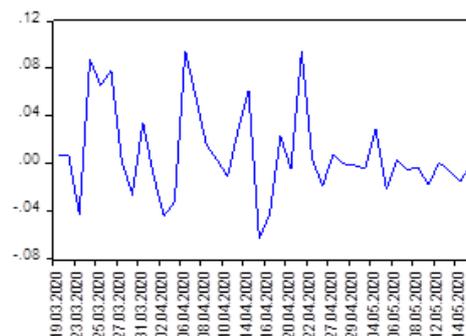
Covid-19 Period Returns (19.03.2020-15.05.2020)



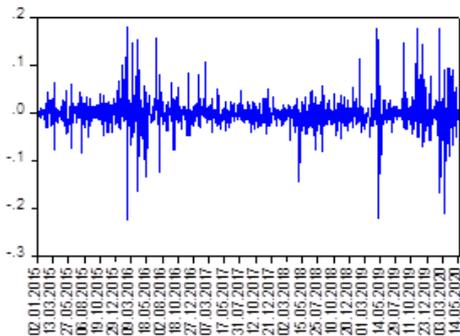
RFENER



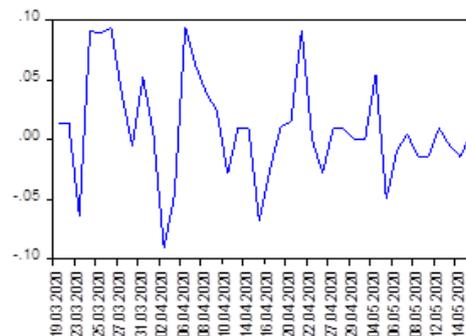
RFENER



RBJKAS



RBJKAS



The interesting outcome for Figure 2 is that although clusters of the three football club stock return deviate from each other significantly in the last five years, in the pandemic period stock return fluctuations are nearly identical which makes us to investigate whether there is an artificial stock price surge in the pandemic period.

5. EMPIRICAL RESULTS

Having performed unit root tests, the next step is to run different versions of EGARCH models for all selected companies. In Table 5 the results of multivariate EGARCH models indicate that in the long run Fenerbahçe and Beşiktaş stock returns are expected to have a positive impact on Galatasaray stock returns as well as first lags of Galatasaray returns itself. However, in the Covid-19 period Fenerbahçe stock return behavior changes and it is expected to have a negative impact on Galatasaray stock returns. All the estimators are significant at %1 significance level in the mean equation of Galatasaray.

Considering the EGARCH models for Fenerbahçe, again in the long run we see that Galatasaray stock returns are expected to have a positive impact on Fenerbahçe stock returns as well as first lags of Galatasaray returns itself. However, in the Covid-19 period Galatasaray stock return behavior changes and it is expected to have a negative impact on Fenerbahçe stock returns. Only Galatasaray stock return is significant at %1 significance level in the mean equation of Fenerbahçe. For Beşiktaş both in the long term and in Covid-19 period Galatasaray and Beşiktaş stock returns are expected to have a positive impact on Beşiktaş stock returns. Excluding the constants, all the estimators are significant at %1 significance level in the mean equation of Beşiktaş for both periods. For the variance equations we conclude that in the long run news impact is more persistent for Fenerbahçe and Beşiktaş compared to Galatasaray.

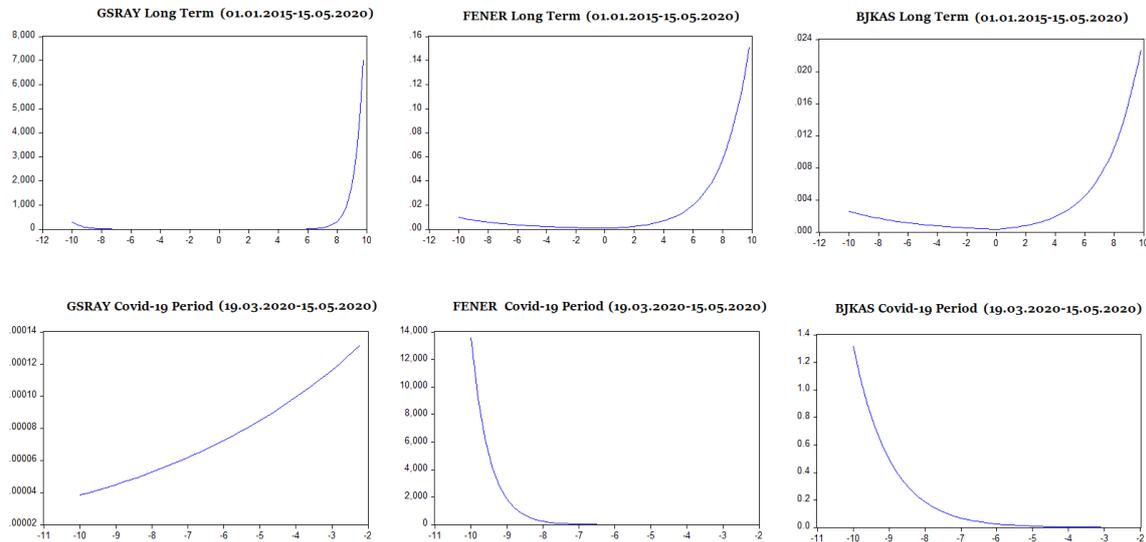
Table 5: EGARCH Models for Long-Term and Covid-19 Periods

	EGARCH Models (Long Period)											
	GSRAY				FENER				BJKAS			
	Mean Equation		Variance Equation		Mean Equation		Variance Equation		Mean Equation		Variance Equation	
	coefficient	z-stats	coefficient	z-stats	coefficient	z-stats	z-stats	coefficient	z-stats	coefficient	z-stats	
C	0.00401	9.81680			0.00464	1.75739			-0.000303	-0.522718		
RGSRAY					0.33111	5.19864			0.063393	19.6987		
RBJKAS	0.72981	66.79742			-0.14412	-0.81197						
RFENER	0.10359	9.41018							0.098957	20.7972		
RGSRAY(-1)	0.11257	7.79399										
α_0			-4.3920	-38.4557			-0.9276	-1.7862			-0.7554	-14.2606
α_1			0.1771	7.8019			0.1424	1.4902			0.1132	10.6679
λ_1			1.5225	66.7196			0.3895	2.3183			0.3143	16.1945
β_1			0.4877	29.0396			0.8991	14.5876			0.9258	143.6413
Observations				1352				1352				1352
R ²				0.0675				0.1165				0.0971
DW				2.0612				1.8870				1.9734
	EGARCH Models (Covid-19 Period)											
	GSRAY				FENER				BJKAS			
	Mean Equation		Variance Equation		Mean Equation		Variance Equation		Mean Equation		Variance Equation	
	coefficient	z-stats	coefficient	z-stats	coefficient	z-stats	z-stats	coefficient	z-stats	coefficient	z-stats	
C	0.00398	1.49741			-0.00272	-1.68261			-0.00188	-1.01164		
RGSRAY					-0.24991	-6.13063			0.42006	6.94222		
RBJKAS	1.51484	8.45362			1.05154	18.15321						
RFENER	-0.55799	-2.80305							0.65181	7.43896		
RGSRAY(-1)	0.17404	2.90573										
α_0			-2.4852	-0.8992			-3.9871	-1.3444			-4.8626	-1.8779
α_1			0.6872	1.4003			-0.0305	-0.0693			-0.5655	-2.0123
λ_1			0.5288	0.8516			1.9634	3.4821			0.4166	0.6578
β_1			0.7472	2.2347			0.7302	2.1011			0.5035	1.7785
Observations				40				40				40
R ²				0.8791				0.8284				0.9252
DW				2.0128				1.8300				1.8107

Figure 3 exhibits new impact curves for all three clubs both in the long run and Covid-19 period. In the long-term good news increases Fenerbahçe and Beşiktaş stock volatility more than bad news. Galatasaray stock volatility is also affected by good news more than bad news however its reaction is slower compared to Fenerbahçe and Beşiktaş. The interesting outcome is

that in Covid-19 period the behavior of Fenerbahçe and Beşiktaş volatility changes. In the pandemic period after suspension of Turkish Football League bad news has more impact on Fenerbahçe and Beşiktaş stock volatility.

Figure 2: News Impact Curves



6. CONCLUSION

In our previous paper “Moneyball in the Turkish Football League: A Stock Behavior Analysis of Galatasaray and Fenerbahçe Based on Information Saliency” we concluded that unexpected wins have a significant effect on stock returns. Moreover, we showed that non-sportive news such as match fixing case of FB and player transfer news of GS have a more significant effect on stock returns where bad news has a higher impact compared to good news. Catastrophic events always create a more emotional cycle in the financial markets.

Although Galatasaray, Fenerbahçe and Beşiktaş neither have better financials nor their international sportive success is better compared to European clubs the stock prices skyrocketed in the last 3 months right after the suspension of league due to pandemic. Galatasaray, Fenerbahçe and Beşiktaş stock prices increased 72%, 40% and 45% respectively between 19.03.2020 and 15.05.2020. According to our EGARCH models we conclude that in Covid-19 period news impact persistency significantly increased for all three big club stock volatilities. Moreover, News Impact curves showed us in Covid-19 period the behavior of Fenerbahçe and Beşiktaş volatility changes. In the pandemic period after suspension of Turkish Football League bad news has more impact on Fenerbahçe and Beşiktaş stock volatility.

Since the leagues are suspended due to Covid-19 pandemic, and weak financial performances of all teams also do not support the stock price performances there is no fundamental explanation for this hike experienced in the last 3 months. This result confirms our first study conclusion which is sporting performances, excluding the unexpected wins, do not have any impact on the volatility of listed football clubs.

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